



Appendix – Produced Water

GWPC – Produced Water as Resource





PRODUCED WATER AS A RESOURCE

IDENTIFYING OPPORTUNITIES & CHALLENGES

The Ground Water Protection Council (GWPC) has developed a multi-stakeholder working group to identify opportunities and challenges associated with utilizing produced water as a resource and to provide suggestions that policy makers, researchers, regulators and others can use to address them. As freshwater resources have become more constrained, the ability to use produced water to offset freshwater demand both inside and outside of the oilfield will offer opportunities and challenges. Since the early days of oil and gas development, the water brought to the surface as a byproduct of the oil and gas production process has been considered a waste. It was not until the 1930s that some of this “produced water” began to be injected back into producing reservoirs as a means of enhancing oil production. When unconventional oil and gas development began in earnest in the early 2000s, the need for water resources to conduct hydraulic fracturing provided a potential new use for produced water.

Developing Solutions: A Modular Approach



A Unique Collaboration

The Ground Water Protection Council has formed a multi-stakeholder working group consisting of state oil and gas and water quality regulatory officials, industry, environmental NGOs, academics and others to develop a report that can be used by policy makers, researchers and regulators to further the goal of conserving freshwater by identifying current practices, research needs, opportunities and challenges for facilitating produced water use instead of fresh water, where possible.



DIVING DEEPER: THE HISTORY OF PRODUCED WATER

What Is Produced Water?

Produced water is the water that comes to the surface as a byproduct of oil and gas exploration and production. For our purposes it includes native formation water and fluids that are brought to surface during well treatment and hydraulic fracturing. It typically contains elevated levels of salts and has many other constituents such as organics, metals and solids such as Magnesium, Sodium, Barium and others. Oil and gas operations produce more than 900 billion gallons of produced water annually. Measured another way, the produced water generated daily is greater than the volume of water that flows over Niagara falls every hour during peak flow.

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How Can Produced Water Become A Resource?

Today, more than 90 percent of produced water is reinjected deep underground into producing oil and gas reservoirs to enhance production or into porous rock strata for disposal. Currently, recycling or reuse of produced water accounts for less than 0.6¹ percent of the water produced. The principal barriers to additional use of produced water include water quality, location, treatment cost, long term availability, ownership and liability concerns and regulatory constraints. In addition, some new alternative use proposals for produced water will also require scientific and technical research to better understand potential environmental or health impacts and identify mitigation strategies. If these barriers can be addressed, produced water could become an important part of a state's water portfolio.

What Is GWPC's Interest In Produced Water?



As the national association of state oil and gas and underground injection control agencies, we are deeply concerned about the overuse of fresh groundwater resources. In areas where drought is persistent or groundwater levels are declining, placing further stress on these resources by using them as a primary source of water in cases where lower quality water could be used amounts to exercising poor resource conservation practices. In addition, beneficial use of produced water could lower the need for underground disposal; resulting in side benefits such as a potential decrease in induced seismicity. By identifying the opportunities and challenges of using produced water and offering options for addressing them, the GWPC hopes to facilitate the development of produced water as a supplement to freshwater resources and fulfill a part of its mission "to promote the protection and conservation of groundwater resources for all beneficial uses..."

Project Timeline

This project was begun in mid 2017 and the GWPC is hoping to produce a draft report for consideration by its Board Directors by the end of the first quarter of 2019.

1. Veil, John, U.S. Produced Water Volumes and Management Practices in 2012. Prepared for the Groundwater Protection Council (April 2015), http://www.gwpc.org/sites/default/files/Produced%20Water%20Report%202014-GWPC_0.pdf (accessed June 16, 2016)

